



BIOLOGY

BOOKS - MODERN PUBLISHERS BIOLOGY (HINGLISH)

ORGANISMS AND POPULATIONS

Practice Problems Organisms And Their Environment

1. What are edaphic factors?



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2. What is chemical weathering?



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3. What do you mean by biological weathering ?



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4. How laterization of soil occurs?



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5. What are litter, duff and humus?



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6. Name the various types of temperature injuries.



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7. Write briefly about macroclimate and microclimate.



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8. What is naturalism ?



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9. What are the different types of habitats of organisms?



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10. List two xerophytic adaptations in the xerophytes.



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11. What are physical components of habitat ?



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12. Define macrohabitat.



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13. How does fish move in water? What do they do to obtain oxygen?



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14. Name two components of ecosystem



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15. Who gave the term ecosystem?



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16. Give two examples each of hydrophytes and mesophytes.



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Practice Problems Characteristics Of Population

1. Define population.



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2. Give the term for the number of organism per unit area.



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3. What was the population density of human population in India according to 2001 and 2011

census?



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4. Define natality rate.



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5. What is mortality rate?



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6. Name the type of Indian population.



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7. Which two factors increase the population size and population density?



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8. Define population



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9. Name two types of growth curves.



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10. What is population explosion?

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11. Give the term for the rapid decline of a population within short period.

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12. Maximum power of reproduction under ideal conditions is called _____.



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13. What are lithophytes?



[Watch Video Solution](#)

14. What are Mesophytes?



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15. What was sex ratio according to 2011 census?



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16. Give two examples of Xerophytes



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17. Define demography.



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18. What are halophytes?



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19. Give two examples of xerophytes



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20. What are hydrophytes?



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21. What was human population in India according to 2001 and 2011 census ?



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22. Which factors determine the population size ?



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23. What is natality?



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24. Which one is celebrated as World Population Day ?



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Ncert File Solved Ncert Exercise Questions

1. How is diapause different from hibernation?



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2. If a marine fish is placed in a fresh water aquarium, will the fish be able to survive? Why or why not?



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3. Define phenotypic adaptation. Give one example.



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4. Most living organisms cannot survive at temperature above $45^{\circ}C$. How are some microbes

able to live in habitats with temperatures exceeding $100^{\circ}C$?



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5. List the attributes that populations but not individuals possess.



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6. If a population growing exponentially double in size in 3 years, what is the intrinsic rate of increase (r) of the population?



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7. Name important defence mechanisms in plants against herbivory.



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8. An orchid plant is growing on the branch of mango tree. How do you describe this interaction between the orchid and the mango tree?



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9. What is the ecological principle behind the biological control method of managing with pest insects?

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10. Distinguish between :

(a) Hibernation and aestivation:

(b) Ectotherms and endotherms.

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11. Write two features of heliophytes



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12. List the various abiotic environmental factors .



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13. Give an example for:

(a) An endothermic animal

(b) An ectothermic animal

(c) An organism of benthic zone .



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14. Define population and community.



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15. Define the following terms and give one example for each:

(a) Commensalism

(b) Parasitism

(c) Camouflage

(d) Mutualism

(e) Interspecific competition



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16. With the help of suitable diagram describe the logistic population growth curve.



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17. Select the statement which explains best parasitism:-

- A. One organism is benefited
- B. Both the organism are benefited
- C. One organism is benefited, other is not affected
- D. One organism is benefited, other is affected

Answer: D



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18. List any three important characteristics of a population and explain.



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Ncert File Ncert Exemplar Problems A Multiple Choice Questions

1. Autecology is the:

- A. Relation of a population to its environment
- B. Relation of an individual to its environment
- C. Relation of a community to its environment
- D. Relation of a biome to its environment

Answer: A



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2. Ecotone is

- A. A polluted area
- B. The bottom of a lake

C. A zone of transition between two communities

D. A zone of developing community

Answer: C



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3. Biosphere is

A. A component in an ecosystem

B. Composed of plants present in the soil

C. Life in the outer space

D. Composed of all living organisms present on earth which interact with the physical environment

Answer: D



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4. Ecological niche is

A. The surface area of the ocean

B. An ecological adapted zone

C. Physical position and functional role of a species within the community

D. Formed of all plants and animals living at the bottom of lake

Answer: C



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5. According to Allen's Rule, the mammals from colder climates have

A. Shorter ears and longer limbs

B. Longer ears and shorter limbs

C. Longer ears and longer limbs

D. Shorter ears and shorter limbs

Answer: D



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6. Salt concentration (salinity) of the sea measured in parts per thousand is

A. 10 – 15

B. 30 – 70

C. 0 – 5

D. 30 – 35

Answer: D



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7. Formation of tropical forests needs mean annual temperature and mean annual precipitation as

A. $18 - 25^{\circ}C$ and $150 - 400cm$

B. $5 - 15^{\circ}C$ and $50 - 100cm$

C. $30 - 50^{\circ}C$ and $100 - 150cm$

D. $5 - 15^{\circ}C$ and $100 - 200cm$

Answer: A



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8. Which of the following forest plants controls the light conditions at the ground ?

A. Lianas and climbers

B. Shrubs

C. Tall trees

D. Herbs

Answer: C



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9. What will happen to a well growing herbaceous plant in the forest if it is transplanted outside the forest in a park?

A. It will grow normally

B. It will grow well because it is planted in the same locality

C. It may not survive because of change in its microclimate

D. It grows very well because the plant gets more sunlight.

Answer: C



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10. If a population of 50 Paramecium present in a pool increases to 150 after an hour, what would be the growth rate of population ?

A. 50 per hour

B. 200 per hour

C. 5 per hour

D. 100 per hour

Answer: D



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11. What would be the percent growth or birth rate per individual per hour for the same population mentioned in the previous question (Question 10)?

A. 100

B. 200

C. 50

D. 150

Answer: B



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12. A population has more young individuals compared to the older individuals. What would be the status of the population after some years?

A. It will decline

B. It will stabilise

C. It will increase

D. It will first decline and then stabilise

Answer: C



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13. What parameters are used for tiger census in our country's national parks and sanctuaries ?

A. Pug marks only

B. Pug marks and faecal pellets

C. Faecal pellets only

D. Actual head counts

Answer: B



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14. Which of the following would necessarily decrease the density of a population in a given habitat ?

A. Natality $>$ mortality

B. Immigration $>$ emigration

C. Mortality and emigration

D. Natality and immigration

Answer: C



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15. A protozoan reproduces by binary fission. What will be the number of protozoans in its population after six generations ?

A. 128

B. 24

C. 64

D. 32

Answer: C



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16. In 2005, for each of the 14 million people present in a country, 0.028 were born and 0.008 died during the year. Using exponential equation, the number of people present in 2015 is predicted as

A. 25 millions

B. 17 millions

C. 20 millions

D. 18 millions

Answer: B



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17. Amensalism is an association between two species where

A. one species is harmed and other is benefited

B. one species is harmed and other is unaffected

C. one species is benefited and other unaffected

D. both the species are harmed

Answer: B



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18. Lichens are the associations of

A. bacteria and fungus

B. algae and bacterium

C. fungus and algae

D. fungus and virus

Answer: C



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19. Which of the following is a partial root parasite ?

A. Sandal wood

B. Mistletoe

C. Orobanche

D. Ganoderma

Answer: A



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20. Which one of the following organisms reproduces sexually only once in its life time ?

A. Banana plant

B. Mango

C. Tomato

D. Eucalyptus

Answer: D



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Ncert File Ncert Exemplar Problems B Very Short Answer Type Questions

1. Species that can tolerate narrow range of temperature are called.....



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2. What are eurythermic species?



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3. Species that can tolerate wide range of salinity are called



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4. Define stenohaline species.



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5. What is the interaction between two species called?



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6. What is commensalism?



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7. Name the association in which one species produces poisonous substance or a change in environmental conditions that is harmful to another species.



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8. What is mycorrhiza?



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9. Emergent land plants that can tolerate the salinities of the sea are called.



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10. Why do high altitude areas have brighter sunlight and lower temperatures as compared to the plains?



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11. What is homeostasis?



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12. Define aestivation.



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13. What is diapause and its significance ?



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14. What would be the growth rate pattern, when the resources are unlimited?



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15. What are the organisms that feed on plant sap and other plant parts called?



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16. What is high altitude sickness? Write its symptoms.





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17. Give a suitable example for commensalism.



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18. Define ectoparasite and endoparasite and give suitable examples.



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19. What is brood parasitism? Explain with the help of an example.



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Ncert File Ncert Exemplar Problems C Short Answer Type Questions

1. Why are coral reefs not found in the regions from West Bengal to Andhra Pradesh but are found in Tamil Nadu and on the east coast of India?



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2. If a freshwater fish is placed in an aquarium containing sea water, will the fish be able to

survive? Explain giving reasons.



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3. Why do all the freshwater organisms have contractile vacuoles whereas majority of marine organisms lack them?



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4. Define heliophytes and sciophytes. Name a plant from your locality that is either heliophyte or sciophyte.





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5. Why do submerged plants receive weaker illumination than exposed floating plants in a lake?



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6. In a sea shore, the benthic animals live in sandy, muddy and rocky substrate and accordingly developed the following adaptations.

(a) Burrowing

(b) Building cubes

(c) Holdfasts/peduncle

Find the suitable substratum against each adaptation.



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7. Categorise the following plants into hydrophytes, halophytes, mesophytes and xerophytes. Give reasons for your answers.

(a) Salvinia (b) Opuntia

(c) Rhizophora (d) Mangifera



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8. In a pond, we see plants which are free-floating, rooted - submerged, rooted emergent rooted with floating leaves. Write the type of plants against each of them.

Plant Name	Type
(a) <i>Hydrilla</i>	
(b) <i>Typha</i>	
(c) <i>Nymphaea</i>	
(d) <i>Lemna</i>	
(e) <i>Vallisneria</i>	



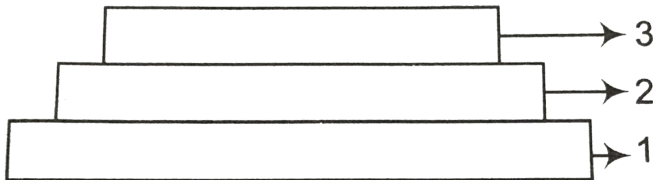
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9. The density of a population in a habitat per unit area is measured in different units. Write the unit of measurement against the following

- (a) Bacteria
- (b) Banyan
- (c) Deer
- (d) Fish



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10.

(a) Label the three tiers 1, 2, 3 given in the above age pyramid.

(b) What type of population growth is represented by the above age pyramid?



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11. In an association of two animal species, one is a termite which feeds on wood and the other is a protozoan *Trichonympha* present in the gut of the termite. What type of association they establish?



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12. Lianas are vascular plants rooted in the ground and maintain erectness of their stem by making use of other trees for support. They do not maintain direct relation with those trees. Discuss the type of association the lianas have with the trees.



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13. Give the scientific names of any two microorganisms inhabiting the human intestine.



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14. What is a tree line?



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15. Define 'zero population growth rate'. Draw a age pyramid for the same.



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16. List any four characters that are employed in human population census.



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17. Give one example for each of the following types

(a) Migratory animal (b) Camouflaged animal

(c) Predator animal (d) Biological control agent

(e) Phytophagous animal (f) Chemical defense agent



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18. Define the term (a) Immigration



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19. Define the following (b) Emmigration



Ncert File Ncert Exemplar Problems D Long Answer Type Questions

1. Comment on the following figure: I, II and III, A, B, C, D, G, P, Q, R, S are species.

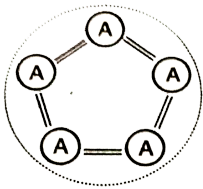


Fig. I

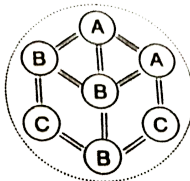


Fig. II

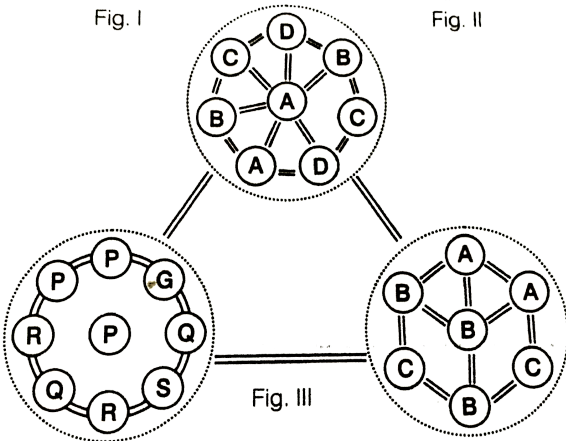


Fig. III



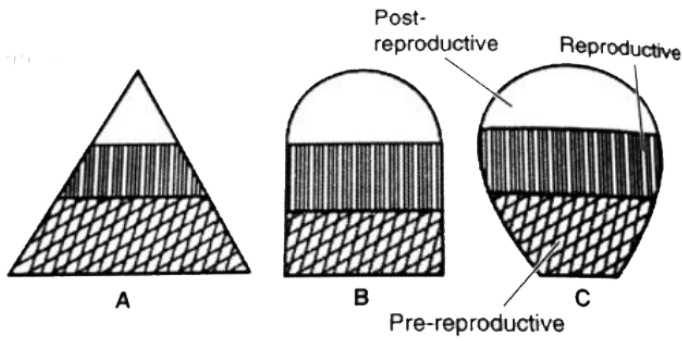
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2. An individual and a population has certain characteristics. Name these attributes with definitions.



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3. The following diagrams are the age pyramids of different populations.



Select the CORRECT statement regarding the above.

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4. Define the following (c) Natality

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5. A population of *Paramecium caudatum* was grown in a culture medium. After 5 days the culture medium became overcrowded with *Paramecium* and had depleted nutrients. What will happen to the population and what type of growth curve will population attain? Draw the growth curve.



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6. Discuss the various types of positive interactions between species.



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7. In an aquarium two herbivorous species of fish are living together and feeding on phytoplanktons. As per the Gause's principle, one of the species is to be eliminated in due course of time, but both are surviving well in the aquarium. Give possible reasons.



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8. While living in and on the host species, the animal parasite has evolved certain adaptations. Describe these adaptations with examples.



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9. Do you agree that regional and local variations exist within each biome?

Substantiate your answer with suitable example.



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10. Which element is responsible for causing soil salinity? At what concentration does the soil become saline?



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11. Does light factor affect the distribution of organisms? Write a brief not giving suitable examples of either plants or animals.



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12. Define the following (d) Mortality



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Higher Order Thinking Skills Brain Twisting Very Short Answer Questions

1. Define ecological niche.



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2. Who proposed competitions-exclusion principle?



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3. Mention two features of sciophytes



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4. What do you mean by photoperiodism?



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5. State one difference between sciophytes and heliophytes.



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6. How do eurythermal and stenothermal animals differ from each other?



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7. Write two features of hydrophytes



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8. Define osmoconformers. Give one example.



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9. How is camel adapted for osmoregulation?



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10. Define carrying capacity .



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Higher Order Thinking Skills Brain Twisting Short Answer Questions Two Marks Each

1. Give the significance of ecological niche.



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2. List four effects of light on animals.



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3. Write two adaptive features of xerophytes



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4. What are adaptations? Give their significance.



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5. Differentiate between osmoregulators and osmoconformers.



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6. Define population. Enlist main characteristics of population.



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7. What is carrying capacity ?



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8. What is Emigration?



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Higher Order Thinking Skills Brain Twisting Short Answer Questions Three Marks Each

1. Define Death rate



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2. What is Ecology?



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3. What is Community?



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4. Discuss thermoregulation in warm blooded as well as cold blooded animals.



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5. What are xerophytes?



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6. What is commensalism?



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7. What is Death rate or Mortality?



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Higher Order Thinking Skills Brain Twisting Long Answer Questions

1. What are Ectoparasites? Give example



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2. What are Endoparasites? Give example



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3. Explain how tolerance to environmental factors determines distribution of species .



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4. What are the different types of adaptations in animals ? Explain with suitable examples .



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5. What is Holoparasite? Give example



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6. What is Mutualism?



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Quick Memory Test A Say True Or False

1. Define population density



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2. What do you mean by heliophytes?



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3. Define weathering



[Watch Video Solution](#)

4. Most important ecological factor is light.



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5. Write two adaptive features of sciophytes



[Watch Video Solution](#)

6. Mention two factors that increases population size



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7. Heliophytes are plants growing in lower light intensities.



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8. What is Primary Productivity?



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9. What is limnetic zone?



[Watch Video Solution](#)

10. What is community?



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11. Define Predation



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12. The best way to regulate population of a country is to decrease birth rate.



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13. Essay on Human Population' was written by Charles Darwin.



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14. The excess of births over deaths in a year per 1,000 individuals is called growth rate.



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15. Biotic potential is the intrinsic rate of natural increase but is not allowed by environmental resistance.



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16. Population size of any species is not a static parameter.



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17. On water availability , Kangaroo rats drink a lot of water.



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18. Moloch (spiny lizard of Australia) has hygroscopic glands in the skin which absorb water

from the moist sand.

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19. Distinct layers of soil are called horizons while their arrangement is called soil profile.

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20. According to Allen's rule, body appendages of animals of colder region are larger than in the warmer parts.

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21. To escape from heat and desiccation , many animals undergo aestivation.



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22. The relationship between sea-anemone and hermit crab is called proto cooperation.



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[Quick Memory Test B Complete The Missing Links](#)

1. The natural home of an organisms is called ____.



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2. The protective similarity of one species of animal to other in appearance is known as ____.



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3. The study of soil is called ____.



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4. Plants growing on burnt soil are called as _____.



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5. Plants growing in saline soil are called



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6. The optimal capacity of the organism to produce offspring is called _____.



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7. At _____, the number of individuals added equals the number of individuals lost.



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8. Rapid increase in human population is called



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9. According to 2011 census, Indian population was:



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10. Mathematical expression of the growth of population is called _____.



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11. Main cause of population explosion is _____.



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12. Environmental factors which resist the increase in population were called _____ by Malthus.



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13. Most densely populated state of India is _____.



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14. In India, sex ratio is _____ (2011 census).



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15. _____ is the study of changes in density and growth of population in relation to various parameters of population.



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16. Exponential phase of human population started in _____.



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17. Tiger population of a national park is generally determined by _____.



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18. Brood parasitism occurs in _____.



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19. Temperature, water, light and soil are _____ factors.



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20. Ecology is the study of _____.



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21. A group of animals of a species that live in a well-defined geographical area, share or compete for similar resources, potentially interbreed and thus constitute a



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22. In a given habitat, the maximum number possible for a species is called _____ of that species in that habitat.



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Quick Memory Test C Choose The Correct Alternative

1. Animal's place in the environment and its functional role in an area is called habitat/ecological niche.



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2. Sum of abiotic and biotic components of a geographical area is called ecosystem/biotic community.



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3. Shrubs of a forested tree are heliophytes/sciophytes.



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4. Corals are stenothermal/eurythermal animals.



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5. Amphibians and lizards undergo aestivation/hibernation during winter months .



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6. Layers of soil are called soil horizons/soil profile.



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7. Change in body shape with change in seasonal temperature is called diapause/cyclomorphosis.



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8. Presence of antifreeze glycoproteins in many fishes of Antarctic waters is a biochemical/physiological adaptation.



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9. Population growth curve in most of organisms is Logistic/Exponential.



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10. Inherent capacity of a population to increase under ideal conditions is represented by ' r '/' k '.



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11. Mutualistic partners show co-extinction/co-evolution.



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12. Clown fish shows commensalism/protocooperation with sea anemones .



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13. Cardiac glycosides are developed by milk weed/tobacco plant to defend from grazers.



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14. Cuscuta is a holoparasitic/semiparasitic plant.



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15. Viceroy butterfly shows protective/aggressive mimicry.



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Revision Exercises I Multiple Choice Questions Mcqs

1. If the rate of addition of new number increases with respect to the individual lost of the same population, then the graph obtained has :

- A. Declined growth
- B. Exponential growth
- C. Zero population growth
- D. None of these

Answer: B



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2. Average ratio of men and women in human population is :

A. 3:4

B. 1:1

C. 3:5

D. 1:2

Answer: B



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3. Two opposite forces operating in growth and development of every population. One of them has ability to reproduce at a given rate. The opposing force is

- A. Biotic potential
- B. Mortality
- C. Fecundity
- D. Environmental resistance

Answer: D



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4. Different life forms, among organisms in relation to environment were given by :

A. Reiter

B. Odum

C. Raunkiers

D. Warming

Answer: C



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5. Zone of atmosphere that lies near the ground is:

A. Troposphere

B. Stratosphere

C. Homosphere

D. All of these

Answer: A



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6. Population explosion has occurred in the last :

A. 500 years

B. 300 years

C. 100 years

D. 250 years

Answer: D



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7. The part of the Earth and the atmosphere supporting life is:

A. Biota

B. Biome

C. Ecotone

D. Biosphere

Answer: D



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8. One of the critical mechanisms by which environment controls the population of a species is :

A. Biotic control

B. Mortality

C. Fecundity

D. Environmental resistance

Answer: D



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9. The exponential growth is maximum in :

- A. Tissue culture cells
- B. Embryo
- C. Unicellular organisms
- D. Multicellular organisms

Answer: A



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10. In a population curve, the rate of growth becomes steady towards the end of exponential curve due to

- A. Reproductive power is reduced
- B. Environmental stress
- C. Migration
- D. All of these

Answer: B



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11. Number of immigration is more than emigration and death is lower than natality. Growth curve of population will show

- A. Exponential phase
- B. Lag phase
- C. Declining phase
- D. Steady phase

Answer: A



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12. Human population follows :

- A. J-shaped growth curve
- B. Z-shaped growth curve
- C. S-shaped growth curve
- D. All of these

Answer: C



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13. Organisms living at the bottom of a lake are

A. Nektons

B. Benthos

C. Planktons

D. Pelagic

Answer: B



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14. Animals have shorter and smaller extremities in colder areas. It is

- A. Allen's rule
- B. Cope's rule
- C. Dollo's rule
- D. Bergman's rule

Answer: A



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15. Which one is exclusive xerophytic adaptation ?

- A. Absence of stomata
- B. Long tap root system
- C. stipular leaves
- D. Spines

Answer: D



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16. World population Day is

- A. 5th june
- B. 11th July

C. 4th October

D. 21st March

Answer: B



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17. What is best pH of soil for cultivation

A. 3.4 - 5.4

B. 4.5-5.5

C. 5.5 - 6.5

D. 6.5 - 7.5

Answer: C



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18. Niche of a species is

- A. Place of living
- B. Specific function and competitive power
- C. Habitat and specific function
- D. None of these

Answer: C



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19. First human population explosion took place due to :

A. Agriculture

B. Industrialization

C. Technology

D. Chaneges in culture

Answer: A



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20. Natality is balanced by mortality. There will be :

A. Decrease in population growth

B. Zero population growth

C. Increase in population growth

D. Overpopulation

Answer: B



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21. Ozone layer is found in :

A. Thermosphere

B. Stratosphere

C. Mesosphere

D. Lithosphere

Answer: B



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22. Ability to produce maximum offspring is

A. Biotic potential

B. Carrying capacity

C. Environmental resistance

D. None of these

Answer: A



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23. Which of the following is most important for speciation?

A. Seasonal isolation

B. Reproductive isolation

C. Behavioural isolation

D. Temporal isolation

Answer: B



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24. Shallow lakes with abundant organic matter are

A. Saprotrophic

B. Oligotrophic

C. Eutrophic

D. Heterotrophic

Answer: C



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25. When birth rate equals death rate, it is called

- A. Plateau stage
- B. Exponential stage
- C. Early growth stage
- D. Acceleration stage

Answer: A



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26. Abundance of a species population within its habitat is

A. Absolute density

B. Regional density

C. Relative density

D. Niche density

Answer: D



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27. Field capacity consist of :

- A. capillary water
- B. Gravitational water
- C. Hygroscopic water
- D. Both (a) and (c)

Answer: D



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28. Plants growing in saline soil with high salt concentration are:

A. Xerophytes

B. Halophytes

C. Heliophytes

D. Hydrophytes

Answer: B



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29. All the asymptote stage, the population is

A. Increasing

B. Decreasing

C. Changing

D. Stabilised

Answer: D



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30. Least porous soil is

A. Clayey soil

B. Sandy soil

C. Loamy soil

D. Gravelly soil

Answer: A



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Revision Exercises II Very Short Answer Questions A Questions From State Board Examinations

1. The pattern of ecosystem in which density and distribution of species vary along a horizontal gradient is called:

(a) Zonation (b) Stratification (c) Ecological niche (d)
Speciation.



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2. Define the term leaching.



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3. What is ecological niche?



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4. Define biome.



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5. Fungal association with the roots of higher plants is called _____.



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6. What is the carrying capacity of environment ?



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7. The density of population in a given habitat increases or decrease due to different reasons. Name two factors responsible for increase in population in a given area.



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8. Define mutualism.



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9. What does J-shaped growth curve of a population indicate?



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10. Name the association in which a parasite is again parasitised.



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11. Define mutualism.



Watch Video Solution

12. What are ectothermic and endothermic animals?



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13. Distinguish between predator and prey .



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14. Sucker fish and shark live in close association is a classic example of commensalism. What is commensalism?



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15. Desert plants like Opuntia are able to grow in extreme conditions . Suggest any two adaptations of this plant.



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16. Ecological niche of a population is defined as _____.



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17. Halophytes grow in _____.



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18. _____ are the organisms that can tolerate a wide range of salinity.



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19. What is resource partitioning in competition?



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20. Precipitation includes rain and _____.



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21. What do you mean by declining population ?



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22. Write the equation of "Verhulst-Pearl logistic growth" of population.



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23. Give an example of parasitic adaptation in an animal.



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24. Define carrying capacity.



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25. Mortality.



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26. Define 'niche'.



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27. What is diapause ?



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28. Define Allen's rule.



[Watch Video Solution](#)

29. Define mutualism.



[Watch Video Solution](#)

30. Define natality rate.



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31. Define commensalism. Give an example.



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32. What are sciophytes?



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33. What are eurythermal organisms?



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34. Under unfavourable condition many zooplankton species in lakes and ponds enter



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35. What is the difference between parasitism and mutualism ?



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36. Which is the lowest living level of biotic organisation?



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37. Mammals living in cold climate have small ears and legs. Which rule do they fulfill?



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**Revision Exercises li Very Short Answer Questions B
Questions From Cbse Examinations**

1. When and why do some animals like frogs hibernate ?



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2. Which one of the two , stenothermals or eurythermals , shows wide range of distribution on earth and why?



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3. List any two adaptive features evolved in parasites enabling them to live successfully on their hosts .

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4. When and why do some animals like snails go into aestivation ?

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5. Mention any two significant roles predation plays in nature.



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6. Name the fungal symbiont that enhance absorption of phosphorus by the host plant.



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7. Cows and dogs are eurythermal animals. Why are polar bears categorised as stenothermal animals?

Give one reason.



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8. Write what do phytophagous insects feed on.



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9. What is an interaction called when an orchid grows on a mango plant?



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10. Name the interaction between a whale and the barnacles growing on its back.



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11. Why are green algae not likely to be found in the deepest strata or the ocean ?



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12. Give an example of an organism that enters 'diapause' and why.



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13. State Gause's Competitive Exclusion Principle.

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Revision Exercises Iii Short Answer Type I Questions A Questions From State Board Examinations

1. How are the mammals from colder climate adapted to their surroundings?

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2. How are desert plants adapted to the dry conditions?



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3. Write a short note on commensalism.



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4. Distinguish between hibernation and aestivation.



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5. Write a note on commensalism with an example.



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6. Write a note on mutualism with examples.



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7. Write a note on competition with examples.



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8. What do you mean by 'r' and 'K' in Verhulst - Pearl logistic growth curve equation

$$dN / dt = rN((K - N) / K)?$$



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9. Differentiate between allelopathy and antibiosis.



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10. Explain the Gause's Competition - Exclusion principle.





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11. Differentiate between commensalism and mutualism.



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12. Why have conformers not evolved to become regulators?



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13. Distinguish between birth rate and death rate.



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14. Write any two adaptations in mesophytes.



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15. How does light influence growth and development in the plants?



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16. What is logistic and exponential growth?



 [Watch Video Solution](#)

17. Mention two differences between Autoecology and Synecology.

 [Watch Video Solution](#)

18. What is a parasite? Write special adaptations according to their life style.

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19. What is the ecological principle behind the biological control method of managing with pest insects?



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20. What is commensalism and amensalism?



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21. If a marine fish is placed in a fresh water aquarium, will the fish be able to survive? Why or

why not?



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22. Define parasitism . Give one example.



[Watch Video Solution](#)

23. Define mimicry or commensalism with an example.



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24. Explain prey-predator relationship.



Watch Video Solution

25. Define biotic community. Give its types.



Watch Video Solution

26. Define ecological niche. Give its types.



Watch Video Solution

27. Explain why very small animals are rarely found in polar region.



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28. What is commensalism? Give one example of this population interaction from plants and one from animals.



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29. What is mutualism? Give any two examples of this population interaction.



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30. What are adaptations? State the adaptations found in desert plants to minimize water loss through transpiration.



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31. What is mutualism? Give three examples





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32. Define phenotypic adaptation. Give one example.



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33. What is Brood parasitism ? Give one example of brood parasitism.



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34. Discuss the categories of organisms on the basis of temperature tolerance giving an example

each.



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35. Define the following terms:

(a) Parasitism (b) Aestivation (w.r.t to animals not plants) (c) Amensalism.



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36. Define the following terms.

(a) Mimicry (b) Hibernation (c) Habitat.



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37. Define the following terms:

(a) Symbiosis (b) Pheromones (c) Epiphytes.



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38. Define predation. Give one example.



Watch Video Solution

39. Define parasitism. Give one example.



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40. Name any one symbiotic nitrogen fixing bacteria. How does help in nitrogen fixation?



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41. Define symbiosis. Give two examples.



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42. Differentiate allelopathy and antibiosis.



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43. What are the factors of population growth?



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44. "The Indian Government took up many serious measures to check the continuous population growth". Summarise the statement in two points.



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45. Explain why very small animals are rarely found in polar region.



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46. What are the various adaptations of parasites ?

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47. Brood parasite is

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48. What is amensalism and commensalism?

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49. Differentiate between Hibernation and Aestivation.



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50. A prey develops defence against a predator, Justify the statement with two example in plants.



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51. Mention any two mechanisms how human body compensates low oxygen availability at higher

altitude.



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52. Match the column (A) and (B) :

(A)	(B)
(i) Mutualism	(a) An orchid growing on a tree trunk
(ii) Predation	(b) Gause's Exclusion Principle
(iii) Commensalism	(c) Biological control
(iv) Competition	(d) Derives nutrition from the host organism
	(e) Mycorrhizae



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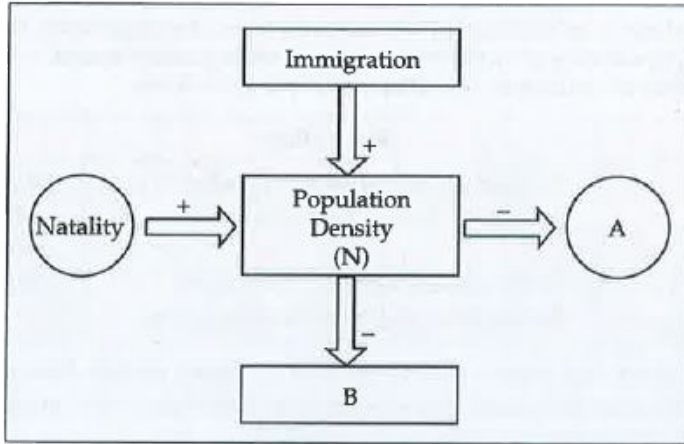
53. Observe flow chart given below:

(a) Name the processes represented as A and B.

(b) If 'N' , is the population density at time t, then

write down the population density equation at time

$t + 1$.



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54. What is age pyramid ? Draw the expanding age pyramid and label its parts.

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Revision Exercises Iii Short Answer Type I Questions B Questions From Cbse Examinations

1. Egrets are often seen along with grazing cattle .
How do you refer to this interaction ? Give a reason
for this association .



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2. (a) What is 'r' in the population equation given
below : $dN/dt = rN$
(b) How does the increase and the decrease in the
value of 'r' affect the population size.



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3. Why do clown fish and sea anemone pair up?

What is this relationship called?



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4. Why is Rhizobium categorized as a 'symbiotic bacterium'? How does it act as a biofertiliser?



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5. Some organisms suspend their metabolic activities to survive in unfavourable conditions.

Explain with the help of any four examples.



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6. How do mycorrhizae act as biofertilizers? Explain.

Name a genus of fungi that forms a mycorrhizal association with plants.



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7. Explain brood parasitism with the help of an example.



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8. Explain why very small animals are rarely found in polar region.



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9. Construct an age pyramid which reflects a stable growth status of human population.





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10. Construct an age pyramid which reflects a stable growth status of human population.



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11. Describe the mutual relationship between fig tree and wasp and comment on the phenomenon that operates in their relationship.



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12. Many fresh water animals can not survive in marine environment. Explain.



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13. What is mutualism ? Mention any two examples where the organisms involved are commercially exploited in agriculture.



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14. A moss plant is unable to complete its life-cycle in a dry environment. State two reasons.



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15. Plants that inhabit a rain forest are not found in a wetland. Explain.



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16. If in a population of size 'N' the birth rate is represented as 'b' and the death rate as 'd', the

increase or decrease in 'N' during a unit time period

't' will be:

$$\frac{dN}{dt} = (b - d) \times N$$

The equation given above can also be represented

as :

$$\frac{dN}{dt} = r \times N, \text{ where } r = (b - d)$$

What does 'r' represent ? Write any one significance of calculating 'r' for any population.



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17. Give two reasons as to why a weed such a Calotropis flourishes in abandoned fields.



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18. What is "carrying capacity" of a species in a habitat? Why is logistic growth model considered more realistic?

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Revision Exercises Iv Short Answer Type Ii Questions A Questions From State Board Examinations

1. Write a note of desert adaptations of animals.

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2. Write a short note on adaptations of xerophytes.



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3. Population interactions may be beneficial or not.

Write any three interactions in detail .



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4. Organisms are influenced by biotic and abiotic factors. Write an account of any three abiotic environmental factors.



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5. Explain brood parasitism with the help of an example.



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6. How does pollination occurs in Mediterranean orchids?



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7. What do you mean by negative interactions between species? Name the type of interactions involved in following examples:

(a) Control of mosquito larvae by Gambusia fish.

(b) Algae and fungus association in lichens.



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8. What do you mean by positive interactions between species?

Name the type of interactions involved in following examples :

(a) *Ascaris* in the gut of man.

(b) Tick bird and Rhinoceros association.



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9. Discuss the effects of temperature on animals.



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10. What do you mean by population? Describe halophytic adaptations in plants.



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11. What are different types of interactions? Explain.



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12. Write a brief note on competitive interactions.



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13. Define the growth curves of population and types of growth curves.



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14. Differentiate between parasitism and competitions giving one example of each. State the common character they share.



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15. Organisms other than human beings manage or adapt to stressful conditions by adopting different mechanisms. Explain any three mechanisms adopted by them to maintain the internal environment.



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16. What is mutualism ? Explain mutualism with suitable examples.



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17. Write a note on a adaptation of plants to water scarcity.



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18. Name two types of competitions found among organisms. Which one of these is more intense and

why?



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19. What is mycorrhiza ? Discuss its two types in detail.



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20. Define phenotypic adaptation. Give one example.



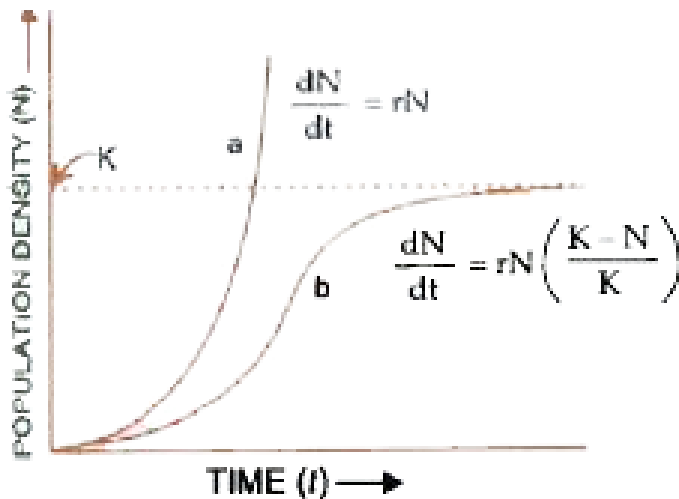
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21. What do you mean by volant adaptations in animals ? What is patagia?



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22. The following graph shows two types of population growth curves:



(i) Name the growth curves.

(ii) What does "K" stand for ?



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23. Describe briefly the biological effect of light on animal reproduction.



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24. What is soil profile? List the properties of its various horizonas.



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25. Define the following terms and give one example for each:

(i) Commensalism (ii) Mutualism.

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26. Distinguish between Endothermic and Poikilothermic animals . Who are osmoregulators?

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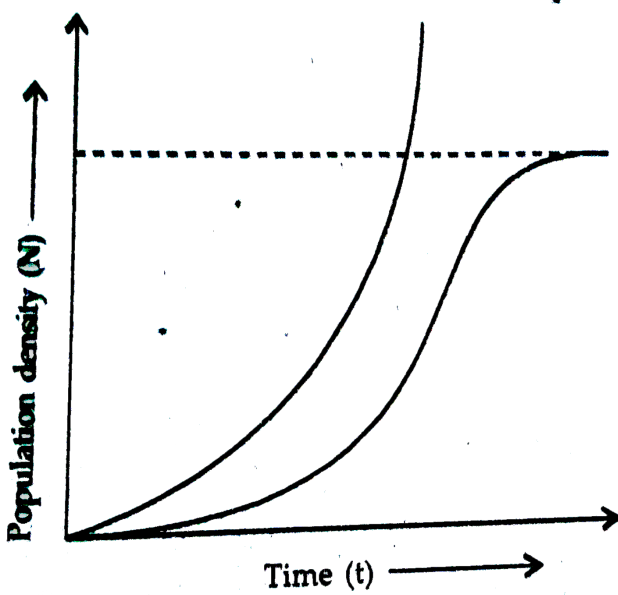
27. What are the three types of age pyramids for human population?



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Revision Exercises Iv Short Answer Type Ii Questions B Questions From Cbse Examinations

1. Study the graph given below and answer the questions that follow:



i) Write the status of food and space in the curves

a) and b).

ii) In the absence of predators, which one of the two curves would appropriately depict the prey population?

iii) Time has been shown on X-axis and there is a parallel dotted line above it. Give the significance of this dotted line.

2. Name the type of interaction seen in each of the following examples
- (i) *Ascaris* worms living in the intestine of human
 - (ii) Wasp pollinating fig inflorescence.
 - (iii) Clown fish living among the tentacles of sea-anemone
 - (iv) Mycorrhizae living on the roots of higher plants
 - (v) Orchid growing on a branch of a mango tree
 - (vi) Disappearance of smaller barnacles when *Balanus* dominated in the Coast of Scotland.

3. (a) State how the constant internal environment is beneficial to organisms.

(b) Explain any two alternatives by which organisms can overcome stressful external conditions.



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4. How do snails, seeds, bears, zooplanktons, fungi and bacteria adapt to conditions unfavourable for their survival ?



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5. Explain co-evolution with reference to parasites and their hosts. Mention any four special adaptive features evolved in parasites for their parasitic mode of life.



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6. In certain cases, we sweat profusely while in some other season we shiver. Explain.



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7. explain with the help of suitable examples the three different ways by which organisms overcome their stressful conditions lasting for short duration .



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8. Name and explain the type of interaction that exists in mycorrhizae and between cattle egret and cattle.



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9. Predation is usually referred to as detrimental association. State any three positive roles that a predator plays in an ecosystem.

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10. (a) " Organisms may be conformers or regulators . " Explain this statement and give one example of each.

(b) Why are there more conformers than regulators in the animals world ?

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11. Different animals respond to changes in their surroundings in different ways . Taking one example each explain some animals indergo aestivation while some others hibernation " .How do fungi respond to adverse climatic conditions ?



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12. How do kangaroo rats and desert plants adapt themselves to survive in their extreme habitat ? Explain .



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13. Differentiate between an "Expanding age pyramid " and a "Stable age pyramid". Substantiate your answer with diagrams.



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14. How do desert lizard cope with the variations in their environment ? Explain.



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15. explain with the help of suitable examples the three different ways by which organisms overcome their stressful conditions lasting for short duration .



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Revision Exercises VI Long Answer Type Questions A Questions From State Board Examinations

1. Discuss the various types of positive interactions between species.



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2. Explain different types of ecological adaptations in hydrophytes.



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3. Negative interactions among populations include parasitism also. Define parasitism. What are its types ? Differentiate between ectoparasites and endoparasites.



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4. Describe the population growth curve when resources are limiting the growth.



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5. Describe the role of temperature in ecosystem as abiotic factor.



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6. (a) Write any two differences between Natality and Mortality rates.

(b) Explain three kinds of population with regard to age distribution.



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7. Explain mutualism with the help of an example.



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8. Describe the negative interactions amongst different species.



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9. What is population growth ? Write an account on exponential growth model of population.

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10. Describe nitrogen cycle.

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11. (a) What are Ectoparasites and Endoparasites?
(b) List any three parasitic adaptations in animals.

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12. What do you mean by interspecific interactions ?

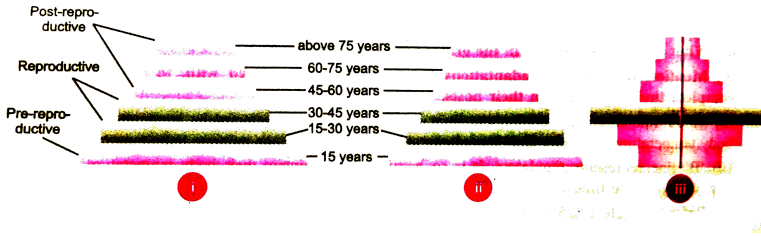
Explain different types of positive interactions in a biotic community.



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Revision Exercises VI Long Answer Type Questions B Questions From Cbse Examinations

1. Study the 3 representative figures of age pyramid relating to human population given below and answer the questions .



(a) Mention the names given to 3 kinds of age profiles (i) , (ii) and (iii) .

(b) Which one of them is ideal for a population and why ?

(c) How do such age-profile studies help policy makers get concerned about our growing population and prepare for future planning



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2. (a) Write an equation for Verhulst Pearl logistic .

Growth where

N = Population density at a time t

r = Intrinsic rate of natural increase

K = Carrying capacity

(b) Draw a graph for a population whose population density has reached the carrying capacity .

(c) Why is the logistic growth model considered a more realistic one for most animal populations ?

(d) Draw a growth curve where resources are not limiting to growth of a population.



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3. "Analysis of age-pyramids for human population can provide important inputs for long-term planning strategies" Explain .



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4. List the different attributes that a population has and not an individual organism.

(b) What is population density? Explain any three different ways the population density can be measured ,with the help of an example each .



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5. (a) Name the two growth models that represent population growth and draw the respective growth curves they represent.

(b) State the basis for the difference in the shape of these curves.

(c) Which one of the curves represent the human population growth at present? Do you think such a curve is sustainable ? Give reason in support of your answer.



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6. a) What is an age-pyramid?

b) Name three representative kinds of age-pyramids for human population and list the characteristics for each one of them.



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7. (a) Compare , giving reasons , the J- shaped and S-shaped models of population growth of a species.

(b) Explain " fitness of a species " as mentioned by Darwin.



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8. (a) Following are the response of different animals to various abiotic factors . Describe each one with the help of an example .

(i) Regulate (ii) conform (ii) Migrate (iv) Suspend

(ii) If 8 individuals in a population of 80 butterflies die in a week , calculate the death rate of population of butterflies during that period .



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Competition File Objective Type Questions A Multiple Choice Questions

1. Biological organisation starts with

A. Atomic level

B. Submicroscopic molecular level

C. Cellular level

D. Organismic level

Answer: C



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2. If the mean and the median pertaining to a certain character of a population are of the same

value, the following is most likely to occur:-

- A. A skewed curve
- B. A normal distribution
- C. A bi-modal distribution
- D. A T-shaped curve

Answer: B

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3. Two plants can be conclusively said to belong to the same species if they

- A. Have the same number of chromosomes
- B. Can reproduce freely with each other and form seeds
- C. Have more than 90 per cent similar genes
- D. Look similar and possess identical secondary metabolites

Answer: B



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4. Geometric representation of age structure is a characteristic of :

- A. Ecosystem
- B. Biotic community
- C. Population
- D. Landscape

Answer: C



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5. The population of an insect species shows an explosive increase in numbers during rainy season followed by its disappearance at the end of the season. What does this show ?

- A. The population of its predators increases enormously
- B. S-shaped or sigmoid growth of this insect
- C. The food plants mature and die at the end of the rainy season
- D. Its population growth curve is of J-type

Answer: D



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6. Relative Biological Effectiveness (RBE) usually refers to damage caused by

- A. Low temperature
- B. High temperature
- C. Radiations
- D. Pollution

Answer: C



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7. Which law of evolution states that "Warmblooded" mammals of hot and humid areas have abundant melanin pigment

A. Dollo's law

B. Gloger's law

C. Cope's law

D. Gause's law

Answer: B



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8. Competition of species leads to :

A. Extinction

B. Mutation

C. Greater number of niches

D. Symbiosis

Answer: A



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9. Mycorrhizae are more common in :

- A. Eutrophic soil
- B. Oligotrophic soil
- C. Both of these
- D. None of these

Answer: B



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10. If the are non-limiting or unlimited conditions are provided than what what will happen to population

I. natality increase

II. Mortality decrease

III. Mortality increase

IV. Natality decrease

Choose the correct combination

A. Natality increases and mortality decreases

B. Mortality decreases

C. Natality increases

D. Mortality increases

Answer: A



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11. Maximum growth rate occur in

A. Stationary phase

B. Senescent phase

C. Lag phase

D. Exponential phase

Answer: D



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12. A terrestrial animal must be able to

A. Excrete large amount of water in urine

B. Conserve water

C. Actively pump salts out through the skin

D. Excrete large amount of salt in urine

Answer: B



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13. Genetic drift operates in

A. Large isolated population

B. Fast reproductive population

C. Small isolated population

D. Slow reproductive population

Answer: C



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14. Root cap is absent in

A. Xerophytes

B. Hydrophytes

C. Mesophytes

D. Halophytes

Answer: B



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15. At which latitude heat gain through insolation approximately equals heat loss through terrestrial radiation :

- A. 66° North and South
- B. $221/2^\circ$ North and south
- C. 40° North and South
- D. $421/2^\circ$ North and South

Answer: C



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16. More than 70% of world's fresh water is contained in

- A. Antarctica
- B. Glaciers and mountains
- C. Green land
- D. Polar ice

Answer: D



17. Which of the following is not true for a species ?

A. Members of a species can interbreed

B. Variations occur among members of species

C. Each species is reproductively isolated from
other species

D. Gene flow does not occur between the
population of a species

Answer: D



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18. Biological concept of species is mainly based on

- A. Reproductive isolation
- B. Morphological features only
- C. Methods of reproduction only
- D. Morphology and methods of reproduction

Answer: A



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19. Edaphology is

- A. Study of elephants
- B. Study of snakes
- C. Study of amphibians
- D. None of these

Answer: D



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20. Population density of terrestrial organisms is measured in terms of individual per :

A. Metre²

B. *Metre*

C. Metre³

D. Meter⁵

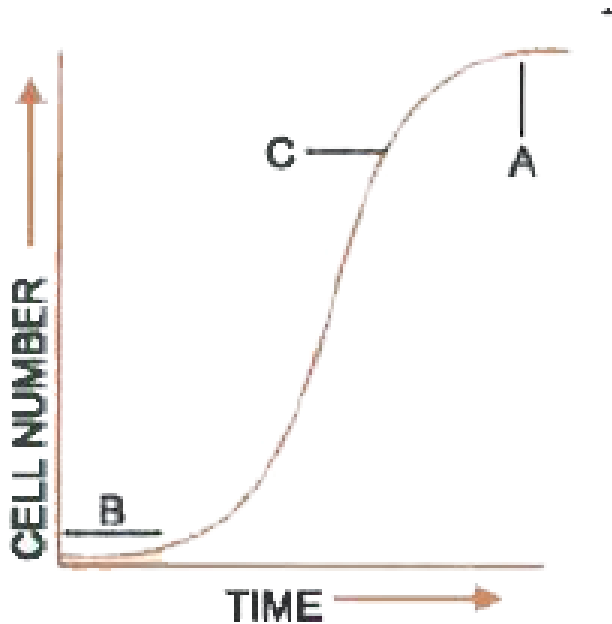
Answer: A



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21. Given below is a graph drawn on the parameters of growth versus time A,B and C respectively

represent.



- A. Exponential phase, lag phase and steady state phase
- B. Steady state phase, lag phase and log phase
- C. Slow growing phase, lag phase and steady state phase

D. Lag phase, steady state phase and log phase

Answer: B



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22. A_0 layer is rich in

A. Minerals

B. Humus

C. Litter

D. None of these

Answer: B



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23. Study of ecology of population is called

A. Autoecology

B. Synecology

C. Ecotype

D. Demecology

Answer: D



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24. Psammophytes are plants that grow where soil is

A. Alkaline

B. Sandy

C. Acidic

D. Alluvial

Answer: B



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25. Species can be identified on the basis of

- A. Interbreeding
- B. Species diversity
- C. Reproductive isolation
- D. None of these

Answer: C



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26. Ecological study of single species is called :

A. Synecology

B. Limnology

C. Autoecology

D. None of these

Answer: C



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27. *Nicotiana sylvestris* flowers only during long days and *N.tobacum* flower only during long days in the laboratory under different photoperiods , they can be induced to flower at the same time and can

be cross fertilized to flower at the and can be cross fertilized to produce self - fertile offspring .What is the best reason for considering *N. sylvestris* and *N. tabacum* to be separate species

- A. They are physiologically distinct
- B. They are morphologically distinct
- C. They cannot interbreed in nature
- D. They are reproductively distinct

Answer: C



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28. What is the keystone species?

- A. A species which makes up only a small proportion of the total biomass of a community, yet has a huge impact on the community's organization and survival.
- B. A common species that has plenty of biomass, yet has a fairly low impact on the community's organization
- C. A rare species that has minimal impact on the biomass and on other species in the community.

D. A dominant species that constitutes a large proportion of the biomass and which affects many other species.

Answer: A



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29. Which are true about the following statements about kangaroo rats

(a) They have dark colour, high rate of reproduction and excrete solid urine

(b) They do not drink water, breathe at slow rate,

and have their body covered with thick hair

(c) They feed on dry seeds and do not require drinking water

(d) They excrete very concentrated urine and do not use water to regulate body temperature

A. 1 and 3

B. 1 and 2

C. 3 and 4

D. 2 and 3

Answer: C



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30. Azolla enriches rice fields with nitrogen due to its association with

Or

A free living nitrogen fixing cyanobacterium which can also form symbiotic association with the water fern Azolla is

A. Tolypothrix

B. Chlorella

C. Nostoc

D. Anabaena

Answer: D



[Watch Video Solution](#)

31. Maximum growth rate occur in

A. Stationary phase

B. Senescent phase

C. Lag phase

D. Exponential phase

Answer: D



[Watch Video Solution](#)

32. The presence of diversity at the junction of territories of two different habitats is known as

A. Bottle neck effect

B. Edge effect

C. Junction effect

D. Pasteur effect

Answer: B



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33. July 11 is observed as

A. World Population day

B. No Tobacco Day

C. World Environment Day

D. World Health Day

Answer: A



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34. Study of ecology of population is called

A. Autoecology

B. Synecology

C. Ecotype

D. Demecology

Answer: D



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35. The amount of fresh water of the earth frozen as polar or glacial ice is

A. 0.5 %

B. 0.02 %

C. 0.01 %

D. 1.97 %

Answer: D



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36. The change in population size at a given time interval t , is given by the expression

$$N_t = N_0 + B + I - D - E$$

I , B and D stand respectively for

A. Immigrate rate, mortality rate, natality rate

B. Emigration rate, Natality rate, mortality rate

C. Mortality rate, natality rate , immigration rate

D. Immigrate rate, natality rate , mortality rate

Answer: D



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37. The plant of this group are adapted to live partly in water and partly above substratum and free from water

A. Xerophytes

B. Thalophytes

C. Halophytes

D. Hydrophytes

Answer: C



Watch Video Solution

38. Which one represents a mutualistic association of a fungus with roots of higher plant?

A. Mycorrhiza

B. Mycoplasma

C. Lichen

D. Myxomycetes

Answer: A



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39. If the stronger partner is benefited and the weak partner is damaged, it is known as :

A. Symbiosis

B. Predation

C. Allelopathy

D. Commensalism

Answer: B



Watch Video Solution

40. The equation $\frac{\Delta N_B}{\Delta N_A} = B$ represents which of the following?

- A. Natality
- B. Growth rate
- C. Mortality
- D. All of these

Answer: B



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41. Identify which one of the following is an example of incomplete ecosystem?

A. Grassland

B. Cave

C. River

D. Wetland

Answer: B



Watch Video Solution

42. Reduction in vascular tissue mechanical tissue and cuticle is characteristic of

- A. Xerophytes
- B. Mesophytes
- C. Epiphytes
- D. Hydrophytes

Answer: D



Watch Video Solution

43. If in a population, natality is balanced by mortality, then there will be

- A. Decrease in population growth
- B. Zero population growth
- C. Increase in population growth
- D. Over population

Answer: B



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44. Xerophytes are mostly

A. Succulents

B. Water related

C. Mesophytes

D. None of these

Answer: A



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45. Halophytes are grown in :

A. Salty soil or saline soil

B. Near the river

C. Rainy water

D. Desert

Answer: A



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46. Niche is defined as :

A. Position of a species in a community in relation to other species

B. Place where an organism lives

C. Place where an organism lives and performs its duty

D. Place where population perform its duty

Answer: C



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47. The assemblage of all the population of different species that function as an integrated unit through co-evolved metabolic transformation in a specific area is called:

A. Biome

B. Biotic community

C. Population

D. Ecosystem

Answer: B



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48. The species of plants that play a vital role in controlling the relative abundance of other species in a community are called

- A. Edge species
- B. Keystone species
- C. Pioneer species
- D. Seral species

Answer: B



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49. Which one is the edaphic factor of biosphere ?

- A. Light
- B. Temperature

C. Water

D. Soil

Answer: D



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50. Genetically adapted population to a particular habitat is called:

A. Ecotone

B. Biome

C. Ecotype

D. Niche

Answer: C



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51. Ratio between mortality and natality is :

A. Vital index

B. Population ratio

C. Density coefficient

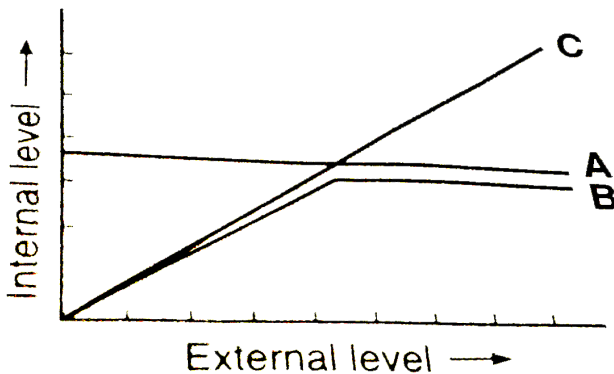
D. Census ratio

Answer: A



Watch Video Solution

52. The figure given below is a diagrammatic representation of response of organisms to abiotic factors. What do A, B and C represent respectively?



- A. 1 2 3
Conformer Regulator Partial regulator

- 1 2 3
B. Regulator Partial regulator Conformer
- 1 2 3
C. Partial regulator Regulator Conformer
- 1 2 3
D. Regulator Conformer Partial regulator

Answer: D



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53. A renewable exhaustible natural resource is

- A. Coal
- B. Patroleum
- C. Minerals

D. Forest

Answer: D



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54. Which one of the following is a xerophytic plant in which the stem is modified into the flat green and succulent structure

Or

Phylloclade is found in

A. Opuntia

B. Casuarina

C. Hydrilla

D. Acacia

Answer: A



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55. In cold climate, the animals have short tail, shorter limbs and ears, this is called :

A. Allen's law

B. Bergam's law

C. Cope's law

D. Jordan's law

Answer: A



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56. Which of the following is a long day plant

A. Glycin max

B. Spinach

C. Chrysanthemum

D. Tobacco

Answer: B



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57. The species, though insignificant in number, determine the existence of many other species in a given ecosystem. Such species is known as:

- A. Endemic species
- B. Sacred species
- C. Extinct species
- D. Keystone species

Answer: D



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58. Which of the following soil is transported by air?

A. Alluvial

B. Aeolian

C. Eluvial

D. Glacial

Answer: B



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59. The timing of seasonal activity of plants in relation to change in environmental conditions is termed as

A. Dendrochronology

B. Biological clock

C. Lapse rate

D. Phenology

Answer: D



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60. Who is considered as father of ecology in India ?

A. Ramdeo Misra

B. M.S. Swaminathan

C. P.Maheshwari

D. S.L. Mehta

Answer: A



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61. A common means of sympatric speciation is

A. Polyploidy

B. Temporal segregation of breeding season

C. Spatial segregation of mating sites

D. Imposition of geographical barrier

Answer: B



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62. Many fresh water animals cannot live for long in sea water and vice versa mainly because of

A. Change in N- levels

B. Variations in light intensity

C. Osmotic problems

D. Special quality of solar radiations

Answer: C



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63. The formula of growth rate for population in given time is :

A. $dt / dN = rN$

B. $dt / rN = dN$

C. $rN / dN = dt$

D. $dN / dt = rN$

Answer: D



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64. An evolutionary pattern characterised by a rapid increase in number and kinds of closely related species is called

A. Convergent evolution

B. Divergent evolution

C. Adaptation radiation

D. Parallel evolution

Answer: C



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65. the volume and surface area of a deer is 1,50,000 cm^3 and $19,000cm^2$ and of a squirrel is $625cm^3$ and $530cm^2$. The area available for heat loss per cm^3 volume of the squirrel will be approximately

A. Seven times more than the deer

B. Five times less than the deer

C. Three times more than the deer

D. Eleven times more than the deer

Answer: A



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66. Considered the following four conditions (A-D) and select the correct pair of them as adaptation to environment in desert lizards. The conditions

(a) Burrowing in soil to escape high temperature

(b) Losing heat rapidly from the body during high

temperature

(c) Bask in sun when temperature is low

(d) Insulating body due to thick fatty dermis options

A. (3), (4)

B. (1), (3)

C. (2), (4)

D. (1), (2)

Answer: B



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67. Inter-breeding animals belong to the same

A. Genus

B. Family

C. Species

D. Order

Answer: C



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68. Lichen represents symbiotic relationship between

- A. Alga and bacteria
- B. Fungi and higher plants
- C. Alga and fungi
- D. Viruses and bacteria

Answer: C



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69. Select the incorrect statement:

- A. An overwhelming majority of animals and nearly all plants maintain a constant internal

environment

- B. An orchid growing as an epiphyte on a mango branch is an example of commensalism
- C. In brood parasitism, the parasite bird lays its eggs in the nest of its host and lets the host to incubate them
- D. Very small animals are rarely found in polar regions

Answer: D



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70. -1°C to 13°C annual variations in the intensity and duration of temperature and 50 to 250 cm annual variation in precipitation, account for the formation of a major biome known as

- A. Temperature forest
- B. Coniferous forest
- C. Tropical forest
- D. Grassland

Answer: B



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71. Which is referred to as "Lungs of the Planet Earth" ?

- A. Western Ghats
- B. Lake Victoria
- C. Greenland
- D. Amazon rain forest

Answer: D



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72. The study of the relation of an organisms with its environment is called

- A. Synecology
- B. Bionomics
- C. Autoecology
- D. Herpetology

Answer: B



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73. Maximum survival and reproductive capacity shown by a population under optimal environmental conditions is called:

A. Carrying capacity

B. Natality

C. Biotic potential

D. Vitality

Answer: C



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74. Pedology refers to study of

A. Soil

B. Water

C. Population

D. Fossils

Answer: A



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75. The basic unit of study in Ecology is

A. Population

B. Organism

C. Community

D. Species

Answer: B



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76. The most important factor which determined the increase in human population in India during the 20th century :

A. Natality

B. Mortality

C. Immigration

D. Emigration

Answer: A



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77. A population growing in a habitat with limited resources shows four phases of growth in the following sequence:

A. Acceleration → Deceleration → Lag phase

→ Asymptotic

B. Asymptotic → Acceleration → Deceleration

→ Lag phase

C. Lag phase → Acceleration → Deceleration

→ Asymptotic

D. Acceleration → Lag phase → Deceleration

→ Asymptotic

Answer: C



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78. Sigmoid/logistic growth curve is represented by

A. $dN / dt = rN$

B. $dN / dt = rN(1 - N / K)$

C. $Nt = N_o + B + I - D - E$

D. $dN / dt = 1 - N / K$

Answer: B



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79. The age of pyramid with broad base indicates :

- A. High percentage of young individuals
- B. Low percentage of young individuals
- C. High percentage of old individuals
- D. Low percentage of old individuals

Answer: A



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80. The term 'Niche' was first used by

- A. Clements
- B. Grinell

C. Warming

D. Odum

Answer: B



Watch Video Solution

81. An interaction favourable to both the population , but not obligatory to either is :

A. Proto-cooperation

B. Mutuaslim

C. Commensalism

D. Parasitism

Answer: A



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82. Mass of living matter at a trophic level in an area at any time is called

A. Detritus

B. Humus

C. Standing state

D. Standing crop

Answer: D



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83. Exponential growth in plants can be expressed as

A. $L_t = L_0 + rt$

B. $L_e = L_t^{rt}$

C. $W_1 = W_0 e^{rt}$

D. $W_1 = W_0 e^{ert}$

Answer: C



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84. In a population, unrestricted reproductive capacity is called

- A. Biotic potential
- B. Fertility
- C. Carrying capacity
- D. Birth rate

Answer: A



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85. An interaction between two individuals where one is benefitted while the other is neither benefitted nor harmed is called as

- A. Amensalism
- B. Commensalism
- C. Mutualism
- D. Predation

Answer: B



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86. The vertical distribution of different species occupying different levels is called as:

- A. Stratification
- B. Fragmentation
- C. Mobilization
- D. Mineralization

Answer: A



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87. The population limited to a particular geographic area is called as :

A. Pandemic

B. Endemic

C. Alien

D. Natural

Answer: B



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88. The carrying capacity of environment for a given population can be represented by the equation

A. $dN = rN - N/K$

B. $dN/dt = rN - N/K$

C. $dN/dt = rN - 1/N$

D. $dN/dt = rN - (1 - N/K)$

Answer: D



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89. In fish *Catla catla*, the specific name is identical with the generic name. It is an example of

A. Autonym

B. Tauonym

C. Synonym

D. Homonym

Answer: B



Watch Video Solution

90. Some organisms are tolerant to a narrow range of salinity and are termed as

- A. Euryhaline
- B. Stenohaline
- C. Neither(a) nor (b)
- D. Saline

Answer: B



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91. The biologist who has been called the "Darwin of the 20th century", was

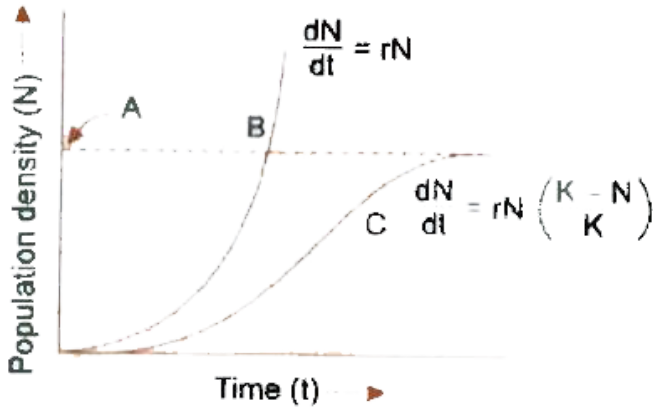
- A. Linnaeus
- B. Ernst Mayr
- C. Diener
- D. Whittaker

Answer: B



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92. Which is correctly labelled with respect to the given diagram?



- A. B : Logistic curve
- B. C : Carrying capacity
- C. C : Exponential curve
- D. A : Carrying capacity

Answer: D



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93. Organisms capable of maintaining constant body temperature are:

- A. Stenothermal
- B. Homeothermal
- C. Poikilothermal
- D. Conformers

Answer: B



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94. Which of the following causes parasitic castration of crab

A. Sacculina

B. Adamsia

C. Spongilla

D. None of these

Answer: A



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95. The stage of suspended development shown by zooplanktons is called:

A. Desiccation

B. Diapause

C. Hibernation

D. Homeostasis

Answer: B



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96. Which of the following statements is false regarding predators ?

A. Predators keep prey population under control

B. Predators help in maintaining species diversity in a community

C. If a predator is not efficient, then the prey population would become extinct

D. Herbivores (predators) have a greater advantage since the plants cannot run away to avoid predation

Answer: C



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97. Lichen is an example of :

A. Mutualism

B. Commensalism

C. Predation

D. Competitions

Answer: A



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98. Orchid growing on a mango branch is example of :

- A. Mutualism
- B. Commensalism
- C. Predation
- D. Competitions

Answer: B



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99. Cuscuta is an example of

- A. Mutualism
- B. Commensalism
- C. Predation
- D. Competitions

Answer: C



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100. A biologist studied the population of rats in a barn. He found that the average natality was 250,

average mortality 240, immigration 20 and emigration 30. The net increase in populations is :

- A. 10
- B. 156
- C. 05
- D. Zero

Answer: D



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101. A sedentary sea anemone gets attached to the shell lining of hermit crab. The association is

A. Ectoparasitism

B. Symbiosis

C. Commensalism

D. Amensalism

Answer: B



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102. Full name of professor Misra who is known as the Father of Ecology in India is

- A. Ramesh Misra
- B. Ramavtar Misra
- C. Ramakant Misra
- D. Ramdeo Misra

Answer: D



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103. Population growth curve is sigmoid, if the growth pattern is

- A. Logistic
- B. Geometric
- C. Exponential
- D. Accretionary

Answer: A



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104. Temperature increases with height in which of the spheres

- A. Troposphere
- B. Stratosphere
- C. Mesosphere
- D. None of the above

Answer: B



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105. $\frac{dN}{dt} = rN$ equation is applicable topopulation growth.

A. Exponential

B. Logistic

C. Both (a) and (b)

D. Not related to population

Answer: A



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106. A few normal seedlings of tomato were kept in a dark room. After few days, they were found to have become white-coloured like albinos. Which of the following terms will you use to describe them ?

A. Etiolated

B. Defoliated

C. Mutated

D. Embolised

Answer: A



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107. The zone of atmosphere in which the ozone layer is present is called

A. Stratosphere

B. Troposphere

C. Ionosphere

D. Mesosphere

Answer: A



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108. Mycorrhiza promotes plant growth by

- A. Absorbing inorganic ions from soil
- B. Helping the plant in utilizing atmospheric nitrogen
- C. Protecting the plant from infection
- D. Serving as plant growth regulator

Answer: A



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109. Most animals are tree dwellers in a

- A. Coniferous forest

B. Thorn woodland

C. Temperature deciduous forest

D. Tropical rain forest

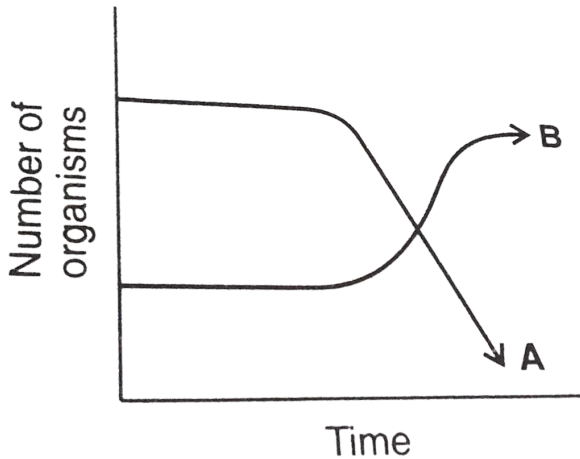
Answer: D



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110. The following graph depicts changes in two populations (A and B) of herbivores in a grassy field.

A possible reason for these changes is that :



- A. Both plant populations in this habitat decreased
- B. Population B competed more successfully for food than population A
- C. Population A produced more offsprings than population B

D. Population A consumed the members of population B

Answer: B



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111. In which of the following interaction both partners are adversely affected ?

A. Competition

B. Predation

C. Parasitism

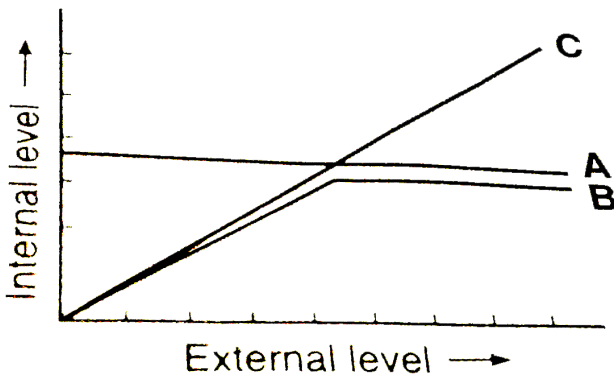
D. Mutualism

Answer: A



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112. The figure given below is a diagrammatic representation of response of organisms to abiotic factors. What do A, B and C represent respectively?



A. A = Conformers, B = Regulators, C = Partial Regulators

B. A = Regulators, B = Partial Regulators , C = Conformers

C. A = Partial Regulators , B = Regulators , C = Conformers

D. A = Partial Regulators , B = Conformers, C = Regulators

Answer: C



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113. Allen's rule applies to:

- A. Tribes living to high altitudes
- B. Mammals of colder climates
- C. Fish living in Antarctic waters
- D. Desert lizards

Answer: B



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114. Troublesome American water weed found in India is

A. Callisnaria

B. Eichhornia

C. Hydrilla

D. Lemna

Answer: B



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115. The characters such as pointed elongated snout, strong and stout forelimbs, well developed claws are observed in _____ adaptation

A. Arboreal

B. Aerial

C. Cursorial

D. Fossorial

Answer: D



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116. A cuckoo laying eggs in the nest of other species of birds is an example of :

A. Adepheparasitism

B. Brood parasitism

C. Ectoparasitism

D. Hyperparasitism

Answer: B



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117. One of the following pair of animals is an example of commensalism :

A. Sacculina - crab

B. Plasmodium - Anopheles

C. Golden jackal - Tiger

D. Ascaris - man

Answer: B



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118. Father of Ecology in india

A. K.C. Mishra

B. K.C. Mehta

C. Ramdeo Mishra

D. P.Maheshwari

Answer: C



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119. Interaction where one species is benefited and other is neither nor harmed is called :

- A. Parasitism
- B. Amensalism
- C. Commensalism
- D. Mutualism

Answer: C



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120. Which of the following are the causes of population growth?

- A. Natality and mortality
- B. Natality and immigration
- C. Mortality and emigration
- D. Natality and emigration

Answer: B



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121. Which of the following is a xerophyte:

- A. Opuntia
- B. Asparagus
- C. Both (a) and (b)
- D. None of these

Answer: C



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122. Which of the following is an abiotic components of the ecosystem?

A. Bacteria

B. Humus

C. Plants

D. Fungi

Answer: B



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123. Who coined the term ecology ?

A. Odum

B. Ernst Haeckel

C. Arthur Tansley

D. Darwin

Answer: B



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124. Shade loving plants are called :

A. Heliphytes

B. Sciophytes

C. Hydrophytes

D. Xerophytes

Answer: B



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125. Which of the following is correct for r-selected species ?

- A. Small number of progeny with large size
- B. Large number of progeny with small size
- C. Large number of progeny with large size
- D. Small number of progeny with small size

Answer: B



126. If '+' sign is assigned to benefited interaction '-' sign to detrimental and '0' sign to neutral interaction, then the population interaction represented by '+-' refers to:

- A. Parasitism
- B. Mutualism
- C. Amensalism
- D. Commensalism

Answer: A



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127. Which of the following is correctly matched?

A. Stratification - Population

B. Aerenchyma - Opuntia

C. Age pyramid - Biome

D. Parthenium hysterophorus - Threat to biodiversity

Answer: D



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128. Conifers are adapted to tolerate extreme environmental conditions because of

- A. Presence of vessels
- B. Broad hardy leaves
- C. Superficial stomata
- D. Thick cutticle

Answer: D



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129. The principle of competitive exclusion was stated by

A. Verhulst and Pearl

B. C. Darwin

C. G.F. Gause

D. Mac Arthur

Answer: C



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130. When does the growth rate of a population following the logistic model equal zero ? The logistic model is given as $dN/dt = rN(1-N/K)$:

- A. When death rate is greater than birth rate
- B. When N/k is exactly one
- C. When N nears the carrying capacity of habitat
- D. When N/k equals zero

Answer: B



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131. Gause's principle of competitive exclusion states that:

A. Larger organisms exclude smaller ones through competition

B. More abundant species will exclude less abundant species through competition

C. Competition for the same resources excludes species having different food preferences

D. No two species can occupy the same niche indefinitely for the same limiting resources.

Answer: D



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132. Another term for cold-blooded animals is :

- A. Endotherm
- B. Ectotherm
- C. Homoiotherm
- D. Thermoregulator

Answer: B



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133. Mycorrhiza is an association between :

- A. Higher plant roots and Glomus
- B. Algae and fungi
- C. Protozoan and algae
- D. Leguminous roots and Rhizobium

Answer: A



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134. Mycorrhizae are the example of

A. Fungistasis

B. Amensalism

C. Antibiosis

D. Mutualism

Answer: D



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135. Asymptote in a logistic growth curve is obtained when

A. Value of 'r' approaches zero

B. $k = N$

C. $k > N$

D. $k < N$

Answer: B



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136. Association of animals when both partners are benefited is :

A. Commensalism

B. Amensalism

C. Mutualism

D. Parasitism

Answer: C



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137. Soil transported by air is

A. Alluvial soil

B. Glacial soil

C. Colluvial soil

D. Eolian soil

Answer: D



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138. The root-fungus association is :

A. Coleorhiza

B. Rhizomorphs

C. Mycorrhiza

D. None of these

Answer: C



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139. N_2 fixing bacteria in legume plants are:

A. Azotobacter

B. Frankia

C. Rhizobia

D. None of these

Answer: C



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140. N_2 fixing bacteria in non-legume plants are:

A. Frankia

B. Rhizobia

C. Plasmodium

D. Aspergillus

Answer: A



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141. Niche is

A. All the biological factors in organism's environment

B. Range of temperature that the organism needs to live

C. Physical space where an organism lives

D. Functional role played by the organism where it lives

Answer: D



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142. Natality refers to

A. Death rate

B. Number of individuals leaving the habitat

C. Birth rate

D. Number of individuals entering a habitat

Answer: C



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143. Which one of the following plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other

A. Hydrilla

B. Banana

C. Yucca

D. Viola

Answer: C



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144. Which one of the following population interaction is widely used in medical science for the production of antibiotics ?

A. Commensalism

B. Parasitism

C. Mutualism

D. Amensalism

Answer: D



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145. In a growing population of a country .

A. Pre-reproductive individuals are more than
the reproductive individuals

- B. Reproductive individuals are less than the post - reproductive individuals
- C. Reproductive and pre-reproductive individuals are equal in number
- D. Pre-reproductive individuals are less than the reproductive individuals.

Answer: A



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146. Which of the following' ecological pyramids is generally inverted?

- A. Pyramid of numbers in grassland
- B. Pyramid of energy
- C. Pyraid of biomass in a forest
- D. Pyramid of biomass in a sea

Answer: D



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147. Matching the Column - I and Column - II.

Column-I	Column-II
1. Saprophyte	(i) Symbiotic association of fungi with plant roots
2. Parasite	(ii) Decomposition of organic materials
3. Lichens	(iii) Living on living plants or animals
4. Mycorrhiza	(iv) Symbiotic association of algae and fungi

Choose the correct option:

A. 1- (i) , 2 - (ii) , 3 - (iii) , 4 - (iv)

B. 1- (iii) , 2 - (ii) , 3 - (i) , 4 - (iv)

C. 1- (ii) , 2 - (i) , 3 - (iii) , 4 - (iv)

D. 1- (ii) , 2 - (iii) , 3 - (iv) , 4 - (i)

Answer: D



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148. Match the correct column

(I)	(II)	(III)
(a) Parasitism	(i) -, 0	(A) Both get benefitted
(b) Amensalism	(ii) -, -	One get harmed other has no effect
(c) Competition	(iii) +, -	(C) Both get harmed
(d) Mutualism	(iv) +, +	(D) One is harmed and second is benefitted

A. 1 - (iii) - (D), 2 - (i) - (B), 3 - (ii) - (C), 4 - (iv) - (A)

B. 1 - (ii) - (C), 2 - (i) - (B), 3 - (ii) - (D), 4 - (iv) - (A)

C. 1 - (iii) - (D), 2 - (i) - (A), 3 - (ii) - (C), 4 - (iv) - (B)

D. 1 - (iii) - (A), 2 - (i) - (B), 3 - (ii) - (D), 4 - (iv) - (A)

Answer: A



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149. These parasites cannot survive without host :

- A. Facultative
- B. Obligate
- C. Brood
- D. Hyperparasites

Answer: B



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150. Birth rate is called:

- A. Mortality

B. Emigration

C. Immigration

D. Natality

Answer: D



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151. The relationship when one species is harmed and other remain unaffected :

A. Amensalism

B. Predation

C. Symbiosis

D. Parasitism

Answer: A



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152. Root-fungal association is called:

A. Lichen

B. Mycorrhiza

C. Parasitism

D. Amensalism

Answer: B



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153. Mutually beneficial relationship is called:

A. Competition

B. Predation

C. Amensalism

D. Symbiosis

Answer: D



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154. The least porous soil among the following is a:

A. Loamy soil

B. Silty soil

C. Clayey soil

D. Peaty soil

Answer: C



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Competition File Objective Type Questions B Matching Type Questions

1. Match the following and choose the correct combination from the option given below:

Column I (Population interaction)	Column II (Examples)
A. Mutualism	1. Ticks on dogs
B. Commensalism	2. <i>Balanus</i> and <i>Chathamalus</i>
C. Parasitism	3. Sparrow and any seed
D. Competition	4. Epiphyte on a mango tree
E. Predation	5. Orchid <i>Ophrys</i> and bee

A. A = 1, B = 5, C = 4, D = 3 , E = 2

B. A = 2, B = 1, C = 5, D = 4 , E = 3

C. A = 3, B = 2 , C = 1 , D = 5, E = 4

D. A = 5, B = 4, C = 1, D = 2, E = 3

Answer: D



2. Match the following and choose the correct answer :

Column I	Column II
A. Bears	1. Diapause
B. Snail	2. Hibernation
C. Zooplanktons	3. Dormancy
D. Seeds	4. Aestivation

A. A = 3, B = 4, C = 1, D = 2

B. A = 2, B = 1, C = 4, D = 3

C. A = 4, B = 1, C = 2, D = 3

D. A = 2, B = 4, C = 1, D = 3

Answer: D



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3. Match the following:

Population Interaction	Example
1. Predation	A. <i>Cuscuta</i> and hedge plants
2. Commensalism	B. <i>Balanus</i> and <i>Chathamalus</i>
3. Parasitism	C. Cactus and moth
4. Competition	D. Orchid and mango

A. 1 = C , 2 = D , 3 = A , 4 = B

B. 1 = D, 2 = C , 3 = B , 4 = A

C. 1 = A, 2 = C , 3 = B , 4 = D

D. 1 = C , 2 = D, 3 = B , 4 = A

Answer: A



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4. Different types of population intersection has been observed in a population. Write the type of interaction observed among the following species :

Species A	Species B	Type of Interaction
1 Orchid ophrys	Bees	_____
2 Cattle	Cattle egret	_____
3 Sea anemone	Clown fish	_____
4 Ticks	Dogs	_____
5 Cuscutta	Hedge plant	_____
6 Tiger	Deer	_____



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Competition File Objective Type Questions C Assertion
Reason Type Questions

1. Assertion : Potential natality is never realized.

Reason: Biotic potential is resisted by environmental resistance

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of

Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: A



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2. Assertion : Migration is an important factor which determines both population size and population density.

Reason : In migration, a major part of population goes from one area to another area.

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: D



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3. Assertion : Cold blooded animals do not have fat layer.

Reason : Cold blooded animals use their fat for metabolic process during hibernation

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of

Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: A



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4. Assertion : In India, the human population is currently undergoing the lag phase.

Reason: A major portion of Indian population is still below poverty line.

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: D



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5. Assertion: Animals adopt different strategies to survive in hostile environment.

Reasons: Praying mantis is green in colour which merges with plant foliage.

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: C



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6. Assertion : Age sex structure of human population in countries like France and Germany gives a steep pyramid.

Reason : In countries like Sudan and India, the population is increasing at a rapid rate.

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of

Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: B



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7. Assertion (A) : Gene flow increase genetic variations.

Reason (R) : The random introduction of new alleles into recipient population and their removal from the donor population affects allele frequency.

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: B



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8. Assertion. Smaller the organism, higher is the rate of metabolism per gram weight.

Reasons. The heart rate of six months old baby is much higher than that of person

- A. If both Assertion and Reason are true and Reason is a correct explanation of Assertion.
- B. If both Assertion and Reason are true and Reason is not a correct explanation of Assertion.
- C. If Assertion is true but Reason is false
- D. If both Assertion and Reason are false.

Answer: A



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9. Assertion : Allelopathy is a form of ammensalism that occurs in plants .

Reason : Association of rooting plants with fungal hyphae is an important example ammensalism .

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of

Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: D



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10. Assertion : Leaf butterfly and stick insect show mimicry to dodge their enemies.

Reason : Mimicry is a method to acquire body colour blending with the surroundings.

A. If both Assertion and Reason are true and

Reason is a correct explanation of Assertion.

B. If both Assertion and Reason are true and

Reason is not a correct explanation of

Assertion.

C. If Assertion is true but Reason is false

D. If both Assertion and Reason are false.

Answer: A



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Chapter Practice Test Section A

1. What are hydrophytes?



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2. What are sciophytes?



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3. What is natality?



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4. Species that can tolerate narrow range of temperature are called.....

A. Euryhaline

B. Stenohaline

C. Eurythermal

D. Stenothermal

Answer:



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5. Mycorrhizae are found in:

A. Eutropic soil

B. Oligotrophic soil

C. Mesotrophic soil

D. Protrophic soil

Answer:



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6. Phase of maximum growth rate is:

A. Lag phase

B. Senescent phase

C. Stationary phase

D. Exponential phase

Answer:



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Chapter Practice Test Section B

1. What are heliophytes?



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2. List four effects of light on the plants.



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3. What is Mycorrhizae?



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4. What is mutualism?



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5. What is mortality?



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Chapter Practice Test Section C

1. What is immigration?



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2. Define the following:

(i) Weathering



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3. (a) What is population density ?



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 [Watch Video Solution](#)

4. (a) What do you mean by pedogenesis and soil profile?



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Chapter Practice Test Section D

1. What is organism?



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Chapter Practice Test Section E

1. What is humification?



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2. What do you mean by Weathering?



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